



Regulatory frameworks in ASEAN

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Cogeneration Policy in ASEAN

Country	Present Situation	Installed Capacity (MW)*	Forecasted Annual Growth of Power Demand	Policy on Cogeneration	Key Off Taker
Cambodia	No National Grid	160	~10%	Preparing Phase	EDC
Indonesia	Govt.- 56% Captive Power -40% IPP - 4%	23,425		IPP, Captive Power, Conservation	PLN
Malaysia	Govt. - 85% Private - 15%	13,760	6-10%	SREP, Cogeneration	TNB
Philippines	Govt. - 55% Private - 45%	14,700	~9%	Renewable Energy	RECS& NPC
Singapore	Power Pool	8,140		-	EMA
Thailand	Govt. - 60% Private - 40%	24,500	~10%	SPP, VSPP, Renewable	EGAT
Vietnam	Govt. - 90% Private - 10%	3,296	~13%	Preparing Phase	EVN



Barriers in Cogeneration (1)

- Technical
- Human
- Information
- Organisation



Barriers in Cogeneration (2)

Components	Barriers	Possible solution
Technical	<ul style="list-style-type: none"> • lack of successful references • seen as complicated to operate • the quality of biomass as a fuel is not homogeneous 	<ul style="list-style-type: none"> ⇒ implementation of demonstration projects ⇒ suppliers to simplify operation; training of operators ⇒ adequate testing of samples
Human	<ul style="list-style-type: none"> • energy not a core business of potential users • risk of being the first to fail 	<ul style="list-style-type: none"> ⇒ create awareness of benefits and opportunities ⇒ references in similar environment; demonstration projects



Barriers in Cogeneration (3)

Components	Barriers	Possible solution
Information	<ul style="list-style-type: none"> • lack of institutions giving information and advice • lack of awareness among users on government rules and incentives • not enough technical and economic information to make a decision 	<ul style="list-style-type: none"> ⇒ strengthening of relevant networks ⇒ information drive ⇒ availability of funds or services to conduct feasibility studies
Organisation	<ul style="list-style-type: none"> • structure of the industry <ul style="list-style-type: none"> - size of mills - transportation problems - seasonality • uncertainty of biomass fuel supply • policy, legal and government issues • financial barriers 	<ul style="list-style-type: none"> ⇒ thorough investigation of these aspects in the feasibility of projects ⇒ initiatives to boost yield and productivity ⇒ government incentives/ support measures? ⇒ innovative financial strategies; government incentives?



Policy related barriers

Policies to enhance cogeneration are “hidden” in policies for renewable energy, power development etc, and spread over many government agencies

Uncertain political will to make legal framework and set targets for cogeneration

Lack of incentives to support clean and efficient cogeneration

Inadequate competition in electricity markets, difficulties to secure grid access on fair terms, and inadequate price recognition of environmental and grid benefits for small power producers



Thailand: 3 major programs

1. Power Purchase Programs from Small Power Producers (SPPs) - 1992-1997 and 2001
2. Subsidy for Renewable Energy SPPs
3. Very Small Renewable Energy Power Producers (VSREPP)



1. Power Purchase from SPPs “The SPP Program”

Started in 1992 – 1st government policy instrument promoting RE and cogeneration use in the power sector.

As of July 2002, 107 SPP project proposals have been submitted to EGAT.

- ☞ 64 projects accepted, with a total proposed sale of 2,233 MW.
- ☞ 60 projects signed PPA with EGAT
- ☞ 50 SPPs now in operation, selling a total of 1,970 MW (EGAT).

Of the 1,970 MW, 1,353 MW or 68.7%, use natural gas as fuel.
Only 178 MW or 9% is generated by RE, wastes or residues.



SPPs by Type of Fuel (as of July 2002)

Type of Fuel	Received Notification of Acceptance			Supplying Power to the Grid		
	No. of Projects	Generating Capacity (MW)	Sale to EGAT (MW)	No. of Projects	Generating Capacity (MW)	Sale to EGAT (MW)
Non-Conventional Energy						
Bagasse	21	448.80	102.20	17	365.50	88.70
Rice Husk	3	24.90	18.80	1	6.00	5.00
Rice Husk/Wood Chips	5	137.30	85.10	4	134.80	82.90
Black Liquor	1	62.80	29.50	-	-	-
Municipal Waste	2	3.54	1.94	1	2.50	1.00
Waste Gas	2	19.00	12.00	-	-	-
Total	34	696.34	249.54	23	508.80	177.60
Commercial Energy						
Natural Gas	21	2,694.31	1,543.00	18	2,081.31	1,353.00
Coal	4	392.20	196.00	4	392.20	196.00
Oil	1	10.40	9.00	1	10.40	9.00
Total	26	3,096.91	1,748.00	23	2,483.91	1,558.00
Mixed Fuel						
Waste gas/Oil/Coal	1	108.00	45.00	1	108.00	45.00
Black Liquor/Coal	1	40.00	10.00	1	40.00	10.00
Coal/Eucalyptus bark	2	328.00	180.00	2	328.00	180.00
Total	4	476.00	235.00	4	476.00	235.00
Grand Total	64	4,269.25	2,232.54	50	3,468.71	1,970.60



3. Very Small Renewable Energy Power Producers - "The VSREPP Program"

On 14 May 2002 the regulations on power purchase from VSREPP was approved.

- A VSREPP project is defined as a generator with own generating unit;
- utilizing RE sources, agricultural and industrial wastes and residues, or by-product steam;
- selling no more than 1 MW of electrical power to a distribution utility.



Thailand - End-users experiences

Downside

- Complicated framework, bureaucratic procedures
- Inconsistent, frequent changes in scope
- Split responsibilities among regulatory bodies
- The system indirectly favours big projects (attitudes, fees, administration)
- The grid connection cost is relatively high for small projects



Thailand - End-users experiences

Upside

- Reasonably attractive energy price, especially for small generators



Thailand – Trends for regulation

A further liberalisation is expected:

- **Privatisation of state owned companies for power generation and distribution; EGAT, MEA and PEA**
- **Launching of a national power pool, allowing for consumers to select electricity supplier**



ASEAN – National Energy Strategy overview

- Most ASEAN countries have an indirect **biomass cogeneration** policy through biomass power and energy efficiency policy, legislation and support programmes.
- Presently, none of the ASEAN countries have any policy, legislation or support programme for **coal** and **natural gas** cogeneration.



Highlights from the ASEAN Cogeneration Policies

- Huge difference between development state of the Electricity Supply Industry in ASEAN Countries
- Cogeneration Policies differ from Country to Country
- Typically Cogeneration Policy is part of National Energy Policy which is often scattered between different agencies



Conclusions

- There is a need for a comprehensive Cogeneration Policy in ASEAN
- Huge potential for Cogeneration but market conditions differ from one country to another
- The driving force for industry to invest in Cogeneration is lower energy cost. This force is independent of overcapacity present in some countries
- Financing largest obstacle for cogeneration investment despite market liquidity



For more information,
please visit COGEN 3 Website at:

<http://www.cogen3.net>

Thank You !